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BARR

December 13, 2011

Mr. Jason Gunter
Remedial Project Manager
U.S. Environmental Protection Agency
Region 7 - Superfund Branch
901 North 5th Street
Kansas City, KS 66101

Re: National Mine Tailings Site Progress Report

Dear Mr. Gunter:

As required by Article VI, Section 51 of the Unilateral Administrative Order (Docket No.CERCLA-07-2006-0231) for the referenced project and on behalf of The Doe Run Company and NL Industries, Inc., the progress report for the period November 1, 2011 through November 30, 2011 is enclosed. If you have any questions or comments, please call me at 573-638-5020 or Mark Nations at 573-518-0600.

Sincerely,

Ty L. Morris, P.E., R.G.
Vice President

TLM/jms
Enclosure
c: Mark Nations – TDRC
Matt Wohl – TDRC
Steve Batts - TDRC
Kevin Lombardozzi – NL Industries, Inc.
John Kennedy – City of Park Hills
Norm Lucas – Park Hills – Leadington Chamber of Commerce
Kathy Rangen – MDNR
Tim Skoglund – Barr Engineering

National Mine Tailings Site
Park Hills, Missouri
Removal Action - Monthly Progress Report
Period: November 1, 2011 – November 30, 2011

1. **Actions Performed and Problems Encountered This Period:**

   a. Work at the site continued on the task of covering the southern slope of the main chat pile with rock. This work included placing a 6-inch layer of crushed rock filter on the graded surface and a 12-inch layer of slope riprap on top of the crushed rock filter. As of the end of the period, work on this task had been completed on all of the slopes including the benches west of Easting Coordinate 817100.

   b. Work on the task of clearing and grubbing vegetation on the Piramal Glass property west of Forest Street across from the Lee Mechanical office building resumed. As of the end of the period, all of the trees had been taken down, chipped, and hauled off. Work on this area will now focus on getting the area surveyed so a detailed design can be developed for this area.

   c. Work at the site was also completed on the Northwest Area. This work focused on addressing some drainage issues that had been raised by the landowner that lives just north of the rock outlet structure located in the northeast corner of this area. This included excavating a shallow ditch from the outlet structure to the drainage way located on the west side of the landowners' property to divert water from coming into his yard. As of the end of the period, the shallow ditch had been excavated, but due to the wetness of the soil in this area, it was not possible to complete the final grading activities. It should be noted that these activities were coordinated with the utility company that owns the high pressure gas line located in this area.

   d. Work also continued on the task of constructing the slopes adjacent to the railroad tracks north of the main chat pile and the slopes on the south side of the Lee Mechanical property to the final subgrade elevations. As of the end of the period, work on this task had been completed and these areas were ready to be covered with rock.

   e. Work at the site continued on the task of meeting with the landowners who may be affected by the removal action activities. This included meeting with landowners who signed an access agreement prior to April 1, 2008, which needed to be amended, as well as landowners who have not signed agreements. As of the end of the period, the following had been accomplished:

      Landowners that own property within the site boundary
      Total number of landowners = 22
      Landowners who signed an access agreement prior to 04/01/08 = 18
      Landowners who signed an access agreement after 04/01/08 = 1
      Landowners who are reviewing the access agreement = 3
      Landowners who have refused to sign the access agreement = 0
      Landowners who still need to be met with concerning the access agreement = 0

      Total number of landowners who need to sign the amendment letter = 18
      Landowners who have signed the amendment letter = 16
      Landowners who are reviewing the amendment letter = 1
      Landowners who refused to sign the amendment letter = 0
      Landowners who still need to be met with concerning the amendment letter = 1

      (Changes in the total number of landowners and the total number of landowners who need to sign the amendment letter are as a result of sales that occurred since the meetings with the landowners began.)

      Landowners that own property immediately adjacent to the site boundary
      Total number of landowners = 27
      Landowners who signed an access agreement prior to 04/01/08 = 11
      Landowners who signed an access agreement after 04/01/08 = 6
      Landowners who are reviewing the access agreement = 4
      Landowners who have refused to sign the access agreement = 3
      Landowners who still need to be met with concerning the access agreement = 3

      Total number of landowners who need to sign the amendment letter = 11
      Landowners who have signed the amendment letter = 11

Landowners who are reviewing the amendment letter = 0
Landowners who refused to sign the amendment letter = 0
Landowners who still need to be met with concerning the amendment letter = 0

(It is not anticipated that it will be a challenge to work around the property owned by the three landowners that refused to sign the access agreement based on location of the property in relationship to the work that needs to be completed. Changes in the total number of landowners and the total number of landowners who need to sign the amendment letter are as a result of sales that occurred since the meetings with the landowners began.)

2. Analytical Data and Results Received This Period:

a. During this period, water samples were collected at the sampling locations identified in Appendix C of the Removal Action Work Plan where water was present. Copies of the analytical results from the last sampling event are included with this progress report.

b. During this period, the Ambient Air Monitoring Report for September 2011 was received. Any issues identified in this report are discussed below. A copy of this document has been sent to your attention.

The September 2011 Ambient Air Monitoring Report noted the following:
- The action levels for lead and dust were not exceeded.
- No samples were taken with the TSP monitors on 9/5/11 due to the holiday.

3. Developments Anticipated and Work Scheduled for Next Period:

a. Resume stripping activities in the Thin Tailings Area.

b. Continue removing slope fill from the main chat pile.

c. Continue constructing the slopes of the Chat Pile Area.

d. Continue rocking portions of the Chat Pile Area and East Erosion Area that have been constructed to the final subgrade elevations.

e. Finish the detailed design on the portion of the Piramal Glass property located west of the Lee Mechanical office building.

f. Continue constructing the eastern buttressing slope between Northing Coordinates N737900 and N738400.

g. Complete monthly water sampling activities as described in the Removal Action Work Plan.

h. Complete air monitoring activities as described in the Removal Action Work Plan.

i. Continue efforts to contact and meet with the landowners identified as potentially being affected by the removal action activities so that access agreements can be obtained.

4. Changes in Personnel:

a. None.

5. Issues or Problems Arising This Period:

a. None.

6. Resolution of Issues or Problems Arising This Period:

a. None.

End of Monthly Progress Report

December 02, 2011

Allison Olds
Barr Engineering Company
1001 Diamond Ridge
Suite 1100
Jefferson City, MO 65109
TEL: (573) 638-5007
FAX: (573) 638-5001

RE: National MTS-25/86-0003 **WorkOrder:** 11110844

Dear Allison Olds:

TEKLAB, INC received 1 sample on 11/18/2011 10:40:00 AM for the analysis presented in the following report.

Samples are analyzed on an as received basis unless otherwise requested and documented. The sample results contained in this report relate only to the requested analytes of interest as directed on the chain of custody. NELAP accredited fields of testing are indicated by the letters NELAP under the Certification column. All tests are performed in the Collinsville, IL laboratory unless otherwise noted in the Case Narrative.

All quality control criteria applicable to the test methods employed for this project have been satisfactorily met and are in accordance with NELAP except where noted. The following report shall not be reproduced, except in full, without the written approval of Teklab, Inc.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Heather A. White

Heather A. White
Project Manager
(618)344-1004 ex 20
HWhite@teklabinc.com

Client: Barr Engineering Company
Work Order: 11110844
Client Project: National MTS-25/86-0003
Report Date: 02-Dec-11

This reporting package includes the following:

Client: Barr Engineering Company
Work Order: 11110844
Client Project: National MTS-25/86-0003
Report Date: 02-Dec-11

Abbr Definition

CCV	Continuing calibration verification is a check of a standard to determine the state of calibration of an instrument between recalibration.
DF	Dilution factor is the dilution performed during analysis only and does not take into account any dilutions made during sample preparation. The reported result is final and includes all dilutions factors.
DNI	Did not Ignite
DUP	Laboratory duplicate is an aliquot of a sample taken from the same container under laboratory conditions for independent processing and analysis independently of the original aliquot.
ICV	Initial calibration verification is a check of a standard to determine the state of calibration of an instrument before sample analysis is initiated.
IDPH	IL Dept. of Public Health
LCS	Laboratory control sample, spiked with verified known amounts of analytes, is analyzed exactly like a sample to establish intra-laboratory or analyst specific precision and bias or to assess the performance of all or a portion of the measurement system. The acceptable recovery range is in the QC Package (provided upon request).
LCSD	Laboratory control sample duplicate is a replicate laboratory control sample that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).
MB	Method blank is a sample of a matrix similar to the batch of associated sample (when available) that is free from the analytes of interest and is processed simultaneously with and under the same conditions as samples through all steps of the analytical procedures, and in which no target analytes or interferences should present at concentrations that impact the analytical results for sample analyses.
MDL	Method detection limit means the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix type containing the analyte.
MS	Matrix spike is an aliquot of matrix fortified (spiked) with known quantities of specific analytes that is subjected to the entire analytical procedures in order to determine the effect of the matrix on an approved test method's recovery system. The acceptable recovery range is listed in the QC Package (provided upon request).
MSD	Matrix spike duplicate means a replicate matrix spike that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).
MW	Molecular weight
ND	Not Detected at the Reporting Limit
NELAP	NELAP Accredited
PQL	Practical quantitation limit means the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operation conditions. The acceptable recovery range is listed in the QC Package (provided upon request).
RL	The reporting limit the lowest level that the data is displayed in the final report. The reporting limit may vary according to customer request or sample dilution. The reporting limit may not be less than the MDL.
RPD	Relative percent difference is a calculated difference between two recoveries (ie. MS/MSD). The acceptable recovery limit is listed in the QC Package (provided upon request).
SPK	The spike is a known mass of target analyte added to a blank sample or sub-sample; used to determine recovery deficiency or for other quality control purposes.
Surr	Surrogates are compounds which are similar to the analytes of interest in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples.
TNTC	Too numerous to count (> 200 CFU)

Qualifiers

- # - Unknown hydrocarbon
- B - Analyte detected in associated Method Blank
- E - Value above quantitation range
- H - Holding times exceeded
- M - Manual Integration used to determine area response
- ND - Not Detected at the Reporting Limit
- R - RPD outside accepted recovery limits
- S - Spike Recovery outside recovery limits
- X - Value exceeds Maximum Contaminant Level

Client: Barr Engineering Company
Client Project: National MTS-25/86-0003

Work Order: 11110844
Report Date: 02-Dec-11

Cooler Receipt Temp: 1.2 °C

Locations and Accreditations

Collinsville		Springfield		Kansas City	
Address	5445 Horseshoe Lake Road Collinsville, IL 62234-7425	Address	3920 Pintail Dr Springfield, IL 62711-9415	Address	8421 Nieman Road Lenexa, KS 66214
Phone	(618) 344-1004	Phone	(217) 698-1004	Phone	(913) 541-1998
Fax	(618) 344-1005	Fax	(217) 698-1005	Fax	(913) 541-1998
Email	jhriley@teklabinc.com	Email	kmcclain@teklabinc.com	Email	dthompson@teklabinc.com

State	Dept	Cert #	NELAP	Exp Date	Lab
Illinois	IEPA	100226	NELAP	1/31/2012	Collinsville
Kansas	KDHE	E-10374	NELAP	1/31/2012	Collinsville
Louisiana	LDEQ	166493	NELAP	6/30/2012	Collinsville
Louisiana	LDEQ	166578	NELAP	6/30/2012	Springfield
Arkansas	ADEQ	88-0966		3/14/2012	Collinsville
Illinois	IDPH	17584		4/30/2012	Collinsville
Kentucky	UST	0073		5/26/2012	Collinsville
Missouri	MDNR	00930		4/13/2013	Collinsville
Oklahoma	ODEQ	9978		8/31/2012	Collinsville

Client: Barr Engineering Company
Work Order: 11110844
Client Project: National MTS-25/86-0003
Report Date: 02-Dec-11
Lab ID: 11110844-001
Client Sample ID: Nat-East
Matrix: AQUEOUS
Collection Date: 11/17/2011 11:10

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
EPA 600 375.2 REV 2.0 1993 (TOTAL)								
Sulfate	NELAP	50		**208**	mg/L	1	11/21/2011 15:03	R156982
STANDARD METHOD 18TH ED. 4500-H B, LABORATORY ANALYZED								
Lab pH	NELAP	1.00		**8.22**		1	11/22/2011 10:50	R156996
STANDARD METHODS 18TH ED. 2340 C								
Hardness, as (CaCO3)	NELAP	5		**380**	mg/L	1	11/21/2011 7:15	R156915
STANDARD METHODS 18TH ED. 2540 C (TOTAL)								
Total Dissolved Solids	NELAP	40		**612**	mg/L	2	11/18/2011 13:58	R156973
STANDARD METHODS 18TH ED. 2540 D								
Total Suspended Solids	NELAP	6	R	**6**	mg/L	1	11/18/2011 13:46	R156923
% RPD was outside the QC limits due to low level results. When duplicate results for TSS are 20 mg/L or less and have a difference of no greater than the PQL, the results are considered within the precision of the test method and are reportable.								
STANDARD METHODS 18TH ED. 2540 F								
Solids, Settleable	NELAP	0.1		**< 0.1**	ml/L	1	11/18/2011 13:33	R156860
STANDARD METHODS 18TH ED. 5310 C, ORGANIC CARBON								
Total Organic Carbon (TOC)	NELAP	1.0		**1.2**	mg/L	1	11/18/2011 11:30	R156903
EPA 600 4.1.1, 200.7R4.4, METALS BY ICP (DISSOLVED)								
Cadmium	NELAP	2.00		**< 2.00**	µg/L	1	11/22/2011 18:39	73115
Zinc	NELAP	10.0		**74.1**	µg/L	1	11/22/2011 18:39	73115
EPA 600 4.1.4, 200.7R4.4, METALS BY ICP (TOTAL)								
Cadmium	NELAP	2.00		**< 2.00**	µg/L	1	11/22/2011 17:06	73109
Zinc	NELAP	10.0		**97.3**	µg/L	1	11/22/2011 17:06	73109
STANDARD METHODS 18TH ED. 3030 B, 3113 B, METALS BY GFAA (DISSOLVED)								
Lead	NELAP	4.00	X	**24.8**	µg/L	2	11/28/2011 13:49	73069
STANDARD METHODS 18TH ED. 3030 E, 3113 B, METALS BY GFAA								
Lead	NELAP	10.0	X	**74.2**	µg/L	5	11/29/2011 14:44	73104

Sample Summary

Client: Barr Engineering Company
Client Project: National MTS-25/86-0003

Work Order: 11110844
Report Date: 02-Dec-11

Lab Sample ID	Client Sample ID	Matrix	Fractions	Collection Date
11110844-001	Nat-East	Aqueous	5	11/17/2011 11:10

Client: Barr Engineering Company
Client Project: National MTS-25/86-0003

Work Order: 11110844
Report Date: 02-Dec-11

Sample ID	Client Sample ID / Test Name	Collection Date	Received Date / Prep Date/Time	Analysis Date/Time
11110844-001A	Nat-East	11/17/2011 11:10	11/18/2011 10:40:00 AM	
	Standard Methods 18th Ed. 2540 F			11/18/2011 13:33
11110844-001B	Nat-East	11/17/2011 11:10	11/18/2011 10:40:00 AM	
	EPA 600 375.2 Rev 2.0 1993 (Total)			11/21/2011 15:03
	Standard Method 18th Ed. 4500-H B, Laboratory Analyzed			11/22/2011 10:50
	Standard Methods 18th Ed. 2340 C			11/21/2011 7:15
	Standard Methods 18th Ed. 2540 C (Total)			11/18/2011 13:58
	Standard Methods 18th Ed. 2540 D			11/18/2011 13:46
11110844-001C	Nat-East	11/17/2011 11:10	11/18/2011 10:40:00 AM	
	EPA 600 4.1.4, 200.7R4.4, Metals by ICP (Total)		11/21/2011 11:45	11/22/2011 17:06
	Standard Methods 18th Ed. 3030 E, 3113 B, Metals by GFAA		11/21/2011 10:20	11/29/2011 14:44
11110844-001D	Nat-East	11/17/2011 11:10	11/18/2011 10:40:00 AM	
	EPA 600 4.1.1, 200.7R4.4, Metals by ICP (Dissolved)		11/21/2011 13:08	11/22/2011 18:39
	Standard Methods 18th Ed. 3030 B, 3113 B, Metals by GFAA (Dissolved)		11/18/2011 15:06	11/28/2011 13:49
11110844-001E	Nat-East	11/17/2011 11:10	11/18/2011 10:40:00 AM	
	Standard Methods 18th Ed. 5310 C, Organic Carbon			11/18/2011 11:30

Client: Barr Engineering Company
Client Project: National MTS-25/86-0003

Work Order: 11110844
Report Date: 02-Dec-11

EPA 600 375.2 REV 2.0 1993 (TOTAL)

Batch R156982 **SampType:** MBLK Units mg/L
SampID: ICB/MBLK

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate	50		< 50						11/21/2011

Batch R156982 **SampType:** LCS Units mg/L
SampID: ICV/LCS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate	50		143	150	0	95.2	90	110	11/21/2011

STANDARD METHOD 18TH ED. 4500-H B, LABORATORY ANALYZED

Batch R156996 **SampType:** LCS Units
SampID: LCS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Lab pH	1.00		7.01	7.00	0	100.1	99.1	100.8	11/22/2011

Batch R156996 **SampType:** DUP Units RPD Limit 10
SampID: 11110844-001BDUP

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH	1.00		8.22				8.220	0.00	11/22/2011

STANDARD METHODS 18TH ED. 2340 C

Batch R156915 **SampType:** MBLK Units mg/L
SampID: MB-R156915

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Hardness, as (CaCO3)	5		< 5						11/21/2011

Batch R156915 **SampType:** LCS Units mg/L
SampID: LCS-R156915

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Hardness, as (CaCO3)	5		1000	1000	0	100.0	90	110	11/21/2011

Batch R156915 **SampType:** MS Units mg/L
SampID: 11110844-001BMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Hardness, as (CaCO3)	5		780	400	380.0	100.0	85	115	11/21/2011

Batch R156915 **SampType:** MSD Units mg/L RPD Limit 10
SampID: 11110844-001BMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Hardness, as (CaCO3)	5		780	400	380.0	100.0	780.0	0.00	11/21/2011

Client: Barr Engineering Company
Client Project: National MTS-25/86-0003

Work Order: 11110844
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STANDARD METHODS 18TH ED. 2540 C (TOTAL)

Batch R156973 **SampType:** MBLK Units mg/L
SampID: MBLK

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Total Dissolved Solids	20		< 20						11/18/2011
Total Dissolved Solids	20		< 20						11/18/2011

Batch R156973 **SampType:** LCS Units mg/L
SampID: LCS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Total Dissolved Solids	20		1060	1000	0	106.2	90	110	11/18/2011
Total Dissolved Solids	20		1040	1000	0	104.4	90	110	11/18/2011

Batch R156973 **SampType:** MS Units mg/L
SampID: 11110844-001B MS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Total Dissolved Solids	40		1630	1000	612.0	101.6	85	115	11/18/2011

Batch R156973 **SampType:** MSD Units mg/L RPD Limit 15
SampID: 11110844-001B MSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Total Dissolved Solids	40		1620	1000	612.0	100.4	1628	0.74	11/18/2011

STANDARD METHODS 18TH ED. 2540 D

Batch R156923 **SampType:** MBLK Units mg/L
SampID: MBLK

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Total Suspended Solids	6		< 6						11/18/2011
Total Suspended Solids	6.00		< 6.00						11/18/2011

Batch R156923 **SampType:** LCS Units mg/L
SampID: LCS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Total Suspended Solids	6		102	100	0	102.0	85	115	11/18/2011
Total Suspended Solids	6		100	100	0	100.0	85	115	11/18/2011
Total Suspended Solids	6		99	100	0	99.0	85	115	11/18/2011
Total Suspended Solids	6		99	100	0	99.0	85	115	11/18/2011
Total Suspended Solids	6		98	100	0	98.0	85	115	11/18/2011

Batch R156923 **SampType:** DUP Units mg/L RPD Limit 15
SampID: 11110844-001B DUP

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Total Suspended Solids	6	R	8				6.000	28.57	11/18/2011

Client: Barr Engineering Company
Client Project: National MTS-25/86-0003

Work Order: 11110844
Report Date: 02-Dec-11

STANDARD METHODS 18TH ED. 5310 C, ORGANIC CARBON

Batch R156903 **SampType:** MBLK Units mg/L
SampID: MB-R156903

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Total Organic Carbon (TOC)	1.0		< 1.0						11/18/2011

Batch R156903 **SampType:** LCS Units mg/L
SampID: LCS-R156903

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Total Organic Carbon (TOC)	5.0		50.1	48.2	0	104.0	89.6	109.5	11/18/2011

EPA 600 4.1.1, 200.7R4.4, METALS BY ICP (DISSOLVED)

Batch 73115 **SampType:** MBLK Units µg/L
SampID: MB-73115

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Cadmium	2.00		< 2.00	2.00	0	0	-100	100	11/23/2011
Cadmium	2.00		< 2.00	2.00	0	0	-100	100	11/22/2011
Zinc	10.0		< 10.0	10.0	0	0	-100	100	11/22/2011
Zinc	10.0		< 10.0	10.0	0	0	-100	100	11/23/2011

Batch 73115 **SampType:** LCS Units µg/L
SampID: LCS-73115

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Cadmium	2.00		45.5	50.0	0	91.0	85	115	11/22/2011
Cadmium	2.00		47.8	50.0	0	95.6	85	115	11/23/2011
Zinc	10.0		454	500	0	90.8	85	115	11/22/2011
Zinc	10.0		468	500	0	93.5	85	115	11/23/2011

Batch 73115 **SampType:** MS Units µg/L
SampID: 11110844-001DMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Cadmium	2.00		42.9	50.0	0.4	85.0	75	125	11/22/2011
Zinc	10.0		501	500	74.1	85.3	75	125	11/22/2011

Batch 73115 **SampType:** MSD Units µg/L RPD Limit 20
SampID: 11110844-001DMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Cadmium	2.00		43.1	50.0	0.4	85.4	42.9	0.47	11/22/2011
Zinc	10.0		501	500	74.1	85.4	500.7	0.10	11/22/2011

Client: Barr Engineering Company
Client Project: National MTS-25/86-0003

Work Order: 11110844
Report Date: 02-Dec-11

EPA 600 4.1.4, 200.7R4.4, METALS BY ICP (TOTAL)

Batch 73109 **SampType:** MBLK Units µg/L
SampID: MB-73109

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Cadmium	2.00		**< 2.00**	2.00	0	0	-100	100	11/23/2011
Cadmium	2.00		**< 2.00**	2.00	0	25.0	-100	100	11/22/2011
Zinc	10.0		**< 10.0**	10.0	0	0	-100	100	11/22/2011
Zinc	10.0		**< 10.0**	10.0	0	29.0	-100	100	11/23/2011

Batch 73109 **SampType:** LCS Units µg/L
SampID: LCS-73109

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Cadmium	2.00		**51.0**	50.0	0	102.0	85	115	11/22/2011
Cadmium	2.00		**51.4**	50.0	0	102.8	85	115	11/23/2011
Zinc	10.0		**517**	500	0	103.4	85	115	11/22/2011
Zinc	10.0		**505**	500	0	100.9	85	115	11/23/2011

Batch 73109 **SampType:** MS Units µg/L
SampID: 11110844-001CMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Cadmium	2.00		**48.4**	50.0	0.6	95.6	75	125	11/22/2011
Zinc	10.0		**587**	500	97.3	98.0	75	125	11/22/2011

Batch 73109 **SampType:** MSD Units µg/L RPD Limit **20**
SampID: 11110844-001CMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Cadmium	2.00		**48.7**	50.0	0.6	96.2	48.4	0.62	11/22/2011
Zinc	10.0		**588**	500	97.3	98.2	587.3	0.19	11/22/2011

STANDARD METHODS 18TH ED. 3030 B, 3113 B, METALS BY GFAA (DISSOLVED)

Batch 73069 **SampType:** MBLK Units µg/L
SampID: MB-73069

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Lead	2.00		**< 2.00**	2.00	0	28.8	-100	100	11/30/2011
Lead	2.00		**< 2.00**	2.00	0	0	-100	100	11/28/2011

Batch 73069 **SampType:** LCS Units µg/L
SampID: LCS-73069

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Lead	2.00		**13.0**	15.0	0	86.9	80	120	11/30/2011
Lead	2.00		**13.5**	15.0	0	89.7	80	120	11/28/2011

Batch 73069 **SampType:** MS Units µg/L
SampID: 11110844-001DMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Lead	4.00		**36.2**	15.0	24.8354	75.9	70	130	11/28/2011

Client: Barr Engineering Company
Client Project: National MTS-25/86-0003

Work Order: 11110844
Report Date: 02-Dec-11

STANDARD METHODS 18TH ED. 3030 B, 3113 B, METALS BY GFAA (DISSOLVED)

Batch 73069 **SampType:** MSD Units µg/L RPD Limit 20

SampID: 11110844-001DMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lead	4.00		**36.3**	15.0	24.8354	76.3	36.2143	0.19	11/28/2011

STANDARD METHODS 18TH ED. 3030 E, 3113 B, METALS BY GFAA

Batch 73104 **SampType:** MBLK Units µg/L

SampID: MB-73104

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Lead	2.00		**< 2.00**	2.00	0	0	-100	100	11/30/2011
Lead	2.00		**< 2.00**	2.00	0	0	-100	100	11/28/2011

Batch 73104 **SampType:** LCS Units µg/L

SampID: LCS-73104

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Lead	2.00		**16.0**	15.0	0	106.6	80	120	11/28/2011
Lead	2.00		**13.2**	15.0	0	87.7	80	120	11/30/2011

Batch 73104 **SampType:** MS Units µg/L

SampID: 11110844-001CMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Lead	10.0		**90.3**	15.0	74.22	107.0	70	130	11/29/2011

Batch 73104 **SampType:** MSD Units µg/L RPD Limit 20

SampID: 11110844-001CMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lead	10.0		**89.5**	15.0	74.22	102.0	90.269	0.84	11/29/2011

Teklab, Inc.
Environmental Laboratory

Receiving Check List

http://www.teklabinc.com/

Client: Barr Engineering Company
Work Order: 11110844
Client Project: National MTS-25/86-0003
Report Date: 02-Dec-11

Carrier: Ricky Schmidt
Received By: MT

Completed by: Timothy W. Mathis
On: 18-Nov-11

Reviewed by: Heather A. White
On: 18-Nov-11

Pages to follow: Chain of custody [1] Extra pages included [0]

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	Temp °C	1.2	
Type of thermal preservation?	None ☐	Ice ☑	Blue Ice ☐	Dry Ice	☐	
Chain of custody present?	Yes ☑	No ☐				
Chain of custody signed when relinquished and received?	Yes ☑	No ☐				
Chain of custody agrees with sample labels?	Yes ☑	No ☐				
Samples in proper container/bottle?	Yes ☑	No ☐				
Sample containers intact?	Yes ☑	No ☐				
Sufficient sample volume for indicated test?	Yes ☑	No ☐				
All samples received within holding time?	Yes ☑	No ☐				
Reported field parameters measured:	Field ☐	Lab ☑	NA ☐			
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐				
When thermal preservation is required, samples are compliant with a temperature between 0.1°C - 6.0°C, or when samples are received on ice the same day as collected.						
Water – at least one vial per sample has zero headspace?	Yes ☐	No ☐	No VOA vials ☑			
Water - TOX containers have zero headspace?	Yes ☐	No ☐	No TOX containers ☑			
Water - pH acceptable upon receipt?	Yes ☑	No ☐				

Any No responses must be detailed below or on the COC.

Custody seal(s) intact on shipping container/cooler. TWM 11/18/11

Teklab Chain of Custody

Pg. 1 of 1 Workorder 11110844

5445 Horseshoe Lake Road ~ Collinsville, IL 62234 ~ Phone: (618)344-1004 ~ Fax:(618)344-1005

Barr Engineering Co.
1001 Diamond Ridge, Suite 1100
Jefferson City | MO | 65109
National MTS - 25/86-0003

Are the samples chilled? (•) Yes ( ) No with: (•) Ice ( ) Blue ice

Preserved in ~~Lab~~ (X) Field 11/18/11

Cooler Temp 1.2 Sampler Chris Schulte

Comments: Invoice to Mark Nations. Results to Allison Olds and Mark Nations, mnations@doerun.com
Matrix is surface water.
Metals = Cd, Pb, Zn Custody Seal intact upon courier P/U

Contact Allison Olds eMail aolds@barr.com Phone 573-638-5007 Requested Due Date Standard Billing/PO Per contract with Doe Run 11/18/11

Lab Use	Sample ID	Sample Date/Time	Preservative	Matrix	pH	T.S.S.	Total Dissolved Solids	Sulfate	Settleable Solids	T.O.C.	Total Metals	Dissolved Metals	Hardness			
11110844 001	Nat-East	11/17/11 11:10	Unpres 5	Aqueous	X	X	X	X	X	X	X	X	X			
			Unpres	Aqueous												
			Unpres	Aqueous												
			Unpres	Aqueous												
			Unpres	Aqueous												
	Teklab, Inc. Courier Pick Up		Unpres	Aqueous												
			Unpres	Aqueous												
			Unpres	Aqueous												

Relinquished By *	Date/Time	Received By	Date/Time
Chris Schulte / Barr	11/17/11 16:00	[signature]	11/18/11 09:20
[signature]	11/18/11 10:40	[signature]	11/18/11 1040

* The individual signing this agreement on behalf of client acknowledges that they have read and understand the terms of this agreement and that they have the authority to sign on behalf of client.